SECTION II.—GENERAL METEOROLOGY.

METEOROLOGICAL SYMBOLS.

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[The drawings for the symbols used in this paper were made by Mr. Harry Amer of the Drafting Room; the Editor wishes also to acknowledge the assistance of Miss Eleanor Buynitzky of the Weather Bureau library and of Mr. B. F. Larcombe of the Printing Division for special assistance in proofing, identifying, and sorting these symbols.]

I. SYMBOLS USED IN THE EIGHTEENTH CENTURY.

Various arbitrary symbols denoting the state of the weather or the occurrence of particular phenomena have been widely used in meteorological records and charts, in order to save space, and also to secure independence of local language. The use of such symbols appears to have been first suggested by J. H. Lambert, in 1771.[1] Lambert's symbols are shown in figure 1.

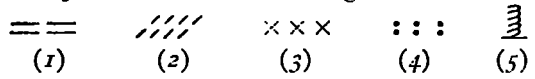

FIG. 1.—Lambert's Symbols. 1771.

1. Clouds. 2. Rain. 3. Snow. 4. Fog. 5. Thunder.
Duplication of a symbol denotes special duration or intensity. No entry=fair weather.

A much more elaborate set of symbols was used by the international observers of the Meteorological Society of the Palatinate, 1781–1792.[2] The symbols shown in figure 2 were used from the beginning of the observations, in 1781, except nos. 13, 14, 28, 29, 30, 31, and 32, which were introduced in 1782. Figure 3, reproduced in facsimile from the *Ephemerides* for 1792, includes, in addition to the symbols shown in figure 2, (1) astronomical symbols, (2) abbreviations relating to the shape and color of clouds and to the points of the compass, and (3) abbreviations and symbols in connection with atmospheric electricity.

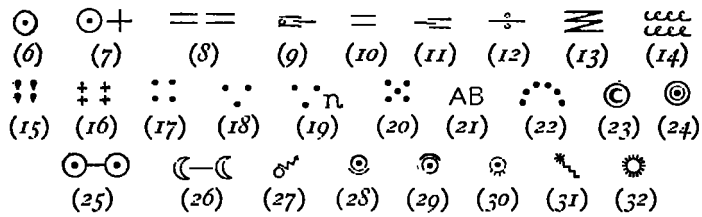

FIG. 2.—Symbols used by the Meteorological Society of the Palatinate, 1781–1792.

6. Cloudless. 7. Cloudless but hazy. 8. Overcast. 9. Nearly overcast. 10. Half cloudy. 11. Slightly cloudy. 12. Very slightly cloudy. 13. Stratiform clouds. 14. Cumuliform clouds. 15. Rain. 16. Snow. 17. Hail. 18. Hoarfrost. 19. Rime. 20. Fog. 21. Aurora borealis. 22. Rainbow. 23. Lunar halo. 24. Solar halo. 25. Parhelion. 26. Paraselene. 27. Thunderstorm. 28. Cloudy sunrise. 29. Cloudy sunset. 30. Sun "drawing water." 31. Meteor. 32. Fireball.
An asterisk (*) added to a symbol denotes special degree or intensity of the phenomenon. See also figure 3.

[1] Nouv. mém. Acad. roy. sci., Berlin, année 1771, p. 63.
[2] *Ephemerides Societatis Meteorologicæ Palatinæ*, Mannheim, 1785–95.

II. THE INTERNATIONAL SYMBOLS.

The International Meteorological Symbols were adopted at the Vienna meteorological congress of 1873. A few additions and modifications have been made at subsequent international meteorological meetings.

The forms of these symbols are more or less flexible. In the accompanying Table 1 (p. 268) the forms of the symbols shown in the first column are those which have generally been used in the United States, and with two exceptions ("wet fog" and "zodiacal light") are identical with those used by the Prussian Meteorological Institute and given in the German editions of the International Meteorological Codex. The principal variants found in the meteorological publications of various countries are shown in the second column. The English designations of the symbols follow the terminology of the English edition of the Codex, as modified by recent editions of the Observer's Handbook of the British Meteorological Office, except that the ambiguous expression "snow-drift" has been replaced by "driving snow"; and the term "haze" has been substituted for "dust haze," in order to include "optical turbidity" of the atmosphere (in accordance with the instructions of the Prussian Meteorological Institute). Explanations have been added where necessary.

Divergent Uses.—In addition to purely typographical errors occurring in various collections of the International Symbols heretofore published,[3] several more or less prevalent misapplications of certain symbols may be noted:

1. The symbols for halos and coronas, as adopted at the Vienna congress, are given differently in the three official versions of the *procès-verbaux*, as follows:

Phenomenon.	Symbols.		
	German.	French.	English.
Solar halo.....	⊕	◐	○
Solar corona.....	◐	⊕	⊕
Lunar halo.....	⊖	∪	∪
Lunar corona.....	∪	⊖	⊖

[3] The symbol for hoarfrost is inverted in Smithsonian Meteorological Tables, 2d ed., 1897, and in several publications of the Weather Bureau. An erroneous symbol for lunar halo appears in Monthly Weather Review, July, 1898, p. 312, and in the Weather Bureau publication "Classification of Clouds and International Meteorological Symbols" (undated). The symbol for aurora is inverted in Monthly Weather Review, July, 1898, p. 312.